

completely lost. In the soils, however, there is a larger proportion of calcium and potassium present than in the 'rotted' lavas. This increase is ascribed to the action of plants and animals.

In an article in the Ponza Islands Schneider¹¹ describes the geological, relation of the rhyolites, the trachytes, the pitchstones and the tuffs of the first two named rocks occurring there. His conclusions are questioned by Sabatini.¹²

BOTANY.¹³

New Species of Fungi from Various Localities.—(Continued from p. 343.)—*HYPOXYLON VERNICOSUM* E. & E. On dead wood. Sent from Ohio by Mr. A. P. Morgan as *Hypoxylon marginatum* (Schw.).

Stroma flattish-pulvinate, 2–3 x 1 cm. and 3–4 mm. thick, black and varnished outside and the uneven surface pitted all over by the papilliform ostiola, surrounded by an annular depression as in *H. marginatum*. Perithecia cylindrical, extending down nearly to the bottom of the stroma and about $\frac{1}{3}$ mm. diam. Asci cylindrical, 75–80 x 4μ , short stipitate, 8-spored. Sporidia oblong-elliptical, 6–7 x 3– $3\frac{1}{2}\mu$. Differs from *H. marginatum* (Schw.) in its varnished stroma and cylindrical perithecia.

PEZIZA (HUMARIA) TRACHYDERMA E. & E. On decaying wood partly buried in the soil, Valentine, Nebraska, May, 1896 (Rev. J. M. Bates, No. 416).

Sessile, shallow cup-shaped, 2–4 mm. diam., carnose, thinning to the acute, spreading margin, wood color when fresh, the furfuraceo-verrucose exterior remaining so when dry, but the hymenium becoming nearly liver color. Margin spreading when fresh, narrowly involute when dry. Asci cylindrical, 200 x 12– 14μ , truncate above. Paraphyses thickened at the lips. Sporidia uniseriate, oblong-elliptical hyaline, smooth, 14–18 x 10– 12μ .

Resembles somewhat a diminutive *Peziza vesiculosa*, but more open and shallower.

PHIALEA ARENICOLA E. & E. On sandy ground near "Blackbird Landing Bridge," Delaware, June, 1896 (Commons, No. 2784).

Stipitate, concave, becoming plane or even slightly convex, disk dull orange, 2–3 mm. broad, outside lighter, uneven, subpruiose. Stipe

¹¹ Min. u. Petrog. Mitth., XVI, p. 65.

¹² *Ib.*, p. 530.

¹³ Edited by Prof. C. E. Bessey, University of Nebraska, Lincoln, Nebraska.

stout, 2–4 mm. long, substriate, gradually enlarged above, same color as the disk. Asci narrow, linear, straight, short-stipitate, 60–65 x 4 μ , paraphysate, 8-spored. Sporidia sub-biseriate, oblong, hyaline, continuous, 6–8 x 1½ μ .

Differs from *P. epigaea* Karst. in its larger ascoma and much smaller sporidia.

TRICHOPEZIZA COARCTATA E. & E. On dead branches of *Vaccinium myrtilloides*, Mountains, Skamania Co., Wash., July, 1894 (Suksdorf, No. 507).

Scattered, superficial, sessile, hemispheric cup-shaped, smoky-white, 300–400 μ diam., thin membranaceous, margin contracted quite strongly at first, so as to leave only a small, round opening, and fringed with short, fasciculate, smooth hairs about 25 or 30 x 2–2½ μ . Asci clavate-oblong, 30–35 x 5–6 μ . Sporidia biseriate, ovate, hyaline, 2-nucleate, 4–5½ x 2½–3 μ .

Closely allied to *T. confusa* Sacc. (*T. punctiformis* Rehm.), but differs in its longer asci and different character of the hairs.

SCLERODERRIS ABIETINA E. & E. On bleached bark of fir trees, Newfoundland, September, 1896 (Waghorne, No. 61).

Erumpent-superficial, black, obconical, about ½ mm. diam., hymenium discoid or convex, areolate, with a very narrow, thin, almost obsolete margin. Asci clavate-oblong, sessile, rounded above, 70 x 15 μ , 8-spored, overtopped by the filiform paraphyses. Sporidia fasciculate, clavate-cylindrical, multinucleate, becoming multiseptate, 50–65 x 3–4 μ , hyaline.

HOLWAYA TILIACEA E. & E. On bark of dead *Tilia*, Canada (Macoun).

Ascomata gregarious or solitary, subcupulate, expanding to plane, thin (when dry), margin subundulate, 2–4 mm. across, black, with a short, thick stipe. Asci cylindrical, short-stipitate, 120–150 x 7–8 μ . Paraphyses? Sporidia fasciculate or subbiseriate, narrow fusoid-cylindrical, nearly straight, multinucleate, hyaline, 40–62 x 3–3½ μ .

Closely resembles outwardly *Bulgaria inquinans*. *Coryne ellisii* Berk. (*Stilbum magnum* Pk.) is found with this, and may be its conidial stage.

UROMYCES ROSICOLA E. & E. On leaves of *Rosa fendleri*? Crawford, Nebraska, June, 1896 (Rev. J. M. Bates, No. 438).

III. Sori hypophyllous, chestnut-brown, confluent over the entire lower face of the leaves, at first covered by the epidermis, soon naked. Spores globose or obovate, 20–35 μ in the longer diam., epispore thick and coarsely tuberculose. Pedicels stout, about as long as the spores.

PUCCINIA SPHAERALCEAE E. & E. I and III. On *Sphaeralcea angustifolia*, Mesilla, New Mexico (Prof. T. D. A. Cockerell).

I. *Aecidium sphaeralceae* E. & E., Bull. Torr. Bot. Club, August, 1895, p. 364.

III. Sori hypophyllous, minute, arranged in a circle, 2–4 mm. across, confluent, at first covered by the epidermis and pale chestnut color, soon naked and dark chestnut color. Teleutospores elliptical or oblong-elliptical, 30–35 x 19–22 μ , nearly hyaline at first, becoming pale brown, slightly constricted at the septum, mostly regularly rounded and only slightly thickened at the apex, mostly also rounded below but often slightly narrowed at the base; epispore smooth. Pedicels stout, persistent, reaching 150 μ long, hyaline.

Differs from *P. malvacearum* Mont. in the presence of an *Aecidium*, in its smaller, more obtuse and comparatively shorter teleutospores.

AECIDIUM SCLEROTHECIOIDES E. & E. On leaves of *Senecio lugens*? Golden, Colorado, May, 1896 (E. Bethel, No. 5).

Pseudoperidia amphigenous, subepidermal, buried in the substance of the leaf in pale yellowish, slightly swollen orbicular spots 2–4 mm. diam., slightly prominent in pustules $\frac{1}{2}$ mm. across, at first closed, then irregularly open at the apex revealing the mass of reddish-brown spores which are globose 20–27 μ , ovate 20–27 x 15 μ , or subangular from compression; epispore smooth or nearly so, rather thick.

Differs from *A. sclerothecium* Speg. in its smaller, inseparable pseudoperidia.

PHYLLOSTICTA HEUCHERAE E. & E. On leaves of *Heuchera cylindrica* near Lake Waha, Idaho, June, 1896 (A. A. & E. G. Heller, No. 3265).

Perithecia amphigenous, hemispherical, suberumpent, broadly perforated above, 110 μ diam., crowded in orbicular patches, $\frac{1}{2}$ –1 cm. diam. Sporules abundant, cylindrical, hyaline, 5–6 x 1–1 $\frac{1}{4}$ μ .

Probably the spermoginal stage of some dothideaceous fungus.

ASTEROMA IVAECOLUM E. & E. On stems of *Iva xanthiifolia*, Denver, Colorado, September, 1896, E. Bethel, No. 28).

Fibrils feather-like, appressed, radiating, forming dark brown spots 2–3 cm. across. Perithecia seated on and among the fibrils, depressed-hemispherical 110–130 μ diam., perforated above. Sporules oblong, hyaline, 4–6 x 1 $\frac{1}{2}$ –2 μ .

SPHAEROPSIS CELTIDIS E. & E. On dead limbs of *Celtis occidentalis*, Phillips Co., Kansas, 1896 (Bartholomew, No. 2348).

Perithecia gregarious or scattered, subseriate, about $\frac{1}{2}$ mm. diam., covered by the epidermis which is slightly raised and barely pierced by

the conic-tuberculiform ostiolum. Sporules oblong-elliptical, brown, 18-21 x 8-10 μ .

SPHAEROPSIS PHLEI E. & E. On bulbous base of dead culms of *Phleum pratense*, Newfield, N. J., December, 1896.

Perithecia densely gregarious, erumpent-superficial, black, ovate, about $\frac{1}{4}$ mm. diam., with a papilliform or sometimes conical ostiolum. Sporules oblong-elliptical, brown, 18-22 x 7-10 μ .

PHLYCTAENA ALBOCINCTA E. & E. On dead stems of *Rhus toxicodendron radicans*, Newfield, N. J., September, 1896.

Perithecia buried in the bark, 400-700 μ diam., the short ostiolum barely perforating the epidermis. Sporules linear, curved, narrowed and curved above, 12-15 x 1-1 $\frac{1}{2}$ μ . A horizontal section shows the perithecia surrounded by a white ring.

SCHIZOTHYRELLA BOREALIS Ell. & Sacc. On dry, decorticated (beech)? wood, Potsdam, N. Y., June, 1896.

Perithecia superficial, scattered or subseriate, orbicular or elliptical, $\frac{1}{3}$ - $\frac{1}{2}$ mm. diam., ovate-globose, at first with a papilliform ostiolum, soon broadly open and cup-shaped, glabrous, black. Sporules cylindrical, hyaline, occasionally dichotomous, separating into segments 6-15 x 1 $\frac{1}{2}$ -2 μ , 1-3 septate.

Differs from *S. australis* Speg. in the dehiscence of the perithecia (not lacinate) and the shorter narrower sporules.

CYLINDROSPORIUM SPIRAEICOLUM E. & E. On leaves of *Spiraea betulifolia*, near Lake Waha, Idaho, June, 1896 (A. A. & E. G. Heller, No. 3303).

Acervuli innate, on small, light yellow, irregularly shaped spots 1-2 mm. diam., few (1-7) on a spot. Conidia clavate-cylindrical, straight, rounded and obtuse above, gradually attenuated below, 3-5 septate, 40-70 x 3 $\frac{1}{2}$ -5 μ , hyaline, erumpent above in orange-yellow masses.

Differs from *C. filipendulae* Thüm. in its epiphyllous acervuli and larger clavate conidia.

MARSONIA CALIFORNICA E. & E. On leaves of *Juglans californica*, Santa Monica, California, August, 1896 (Prof. A. J. McClatchie).

Spots amphigenous, angular, 1-3 mm. diam., subconfluent, ferruginous becoming grayish above, border narrow, slightly raised, dark. Acervuli innate, visible on both sides of the leaf. Conidia cylindrical, mostly straight, but sometimes slightly curved, hyaline, uniseptate, 20-27 x 3 μ , obtusely rounded at the ends.

Differs from *M. juglandis* (Lib.) in its smaller, definite spots and cylindrical conidia.

ASTRODOCHIUM E. & E., nov. gen.

Sporodochia innate-superficial, formed by the transformation of brown, appressed, branched, radiating fibers. Conidia oblong, continuous, hyaline, borne singly and terminal on simple basidia.

ASTRODOCHIUM COLORADENSE E. & E. On fallen leaves of *Quercus undulata*, Morrison, Colo., December, 1896 (E. Bethel, No. 170).

Epiphyllous, forming round brown spots $\frac{1}{2}$ –1 cm. across and having the general aspect of *Asteroma*. The adnate fibers abundantly and suboppositely branched towards their extremities are soon transformed into round or elliptical, subdiscoid, light amber-colored sporodochia $\frac{1}{4}$ – $\frac{1}{2}$ mm. diam. consisting of closely packed obclavate, $12 \times 2\frac{1}{2}\mu$, hyaline basidia bearing at their tips the oblong hyaline, 4 – $6 \times 1\frac{1}{4}$ – $1\frac{1}{2}\mu$, conidia.

Belongs in Fam. *Tuberculariaceae*, *Mucedineae*.

SEPEDONIUM TUBERCULIFERUM E. & E. Parasitic on *Peziza hemispherica* Wigg. and *P. fusicarpa* Ger., Nuttallburg, W. Va., July, 1896; alt. 1800 ft. (L. W. Nuttall, No. 883).

Hyphae effused, forming a thin, white layer on the surface of the hymenium, becoming pulverulent and yellowish at maturity; fertile hyphae with the ultimate divisions di-trichotomously or verticillately branched, the branches lanceolate, 20 – 30×2 – $2\frac{1}{2}\mu$, bearing at their extremities the globose conidia 15 – 18μ diam., bearing at symmetrical distances on their periphery 8 – 10 depressed globose, hyaline smooth tubercles 6 – 7μ diam. and sometimes separable from the central spore.

TORULA ERUMPENS E. & E. On decorticated, weather-beaten wood (poplar)? Morrison, Colo., December, 1896 (E. Bethel, No. 166).

Erumpent in flat, discoid, orbicular or elliptical tufts $\frac{1}{2}$ – $\frac{3}{4}$ mm. diam. Conidia cylindrical, 2 – 5 septate, concatenate, 10 – $20 \times 3\frac{1}{2}$ – 4μ , dark brown, nearly opaque.

MACROSPORIUM FICI Ell. & Kelsey. On leaves of *Ficus elastica*, Oberlin, Ohio, September, 1896 (Prof. F. D. Kelsey, No. 1076).

Hyphae amphigenous, very dark brown, fasciculate, septate and more or less constricted at the septa, 70 – 125×4 – 5μ forming olivaceous tufts as large as a small pin's head thickly scattered over the large (1–2 cm.), dirty white spots with a dull purplish-red border. Conidia club-shaped, 3 – 7 septate, with a more or less complete longitudinal septum, 40 – 50×10 – 16μ , with a pedicel 20 – 30μ long.

Quite different from *M. torulosum* Pass. on limbs of *Ficus*.

J. B. ELLIS AND B. M. EVERHART.

Botanical Notelets.—Dr. R. E. Call publishes, in the Journal of the Cincinnati Society of Natural History (March, 1897), an interest-